21. (New) The monoclonal antibody according to claim 20 wherein said monoclonal antibody forms an immunological complex

(a) with a peptide YSSPGSPGT (SEQ ID NO 1) or YSSPGSPGT (SEQ ID NO 2), wherein said peptide is phosphorylated at a position marked with *, ,

(b) or with any other peptide forming an immunological complex with a monoclonal antibody, which forms a complex with peptide YSSPGSPGT (SEQ ID NO 1) or YSSPGSPGT (SEQ ID NO 2).

22. (New) The monoclonal antibody according to claim 20 selected to exclude forming an immunological complex with:

(a) normal tau protein;

(b) tau protein present in brain homogenates derived from human brain, the homogenates being isolated from a patient having died of a non-neurological disorder;

(c) a phosphorylated epitope treated with a dephosphorylating agent; and

(d) any variant peptide treated with a dephosphorylated agent.

23. (New) The monoclonal antibody according to claim 20, wherein said monoclonal antibody:

(a) forms an immunological complex with the abnormally phosphorylated forms of tau protein, present in homogenates of human brain of a patient having died of Alzheimer's disease; and wherein

(b) abnormally phosphorylated tau proteins present an apparent molecular weight which is higher than that of normal tau proteins, obtained from brain homogenates isolated from a patient having died of non-neurological disorders; and wherein

(c) the apparent molecular weight can be decreased to that of normal tau proteins upon treatment of said abnormally phosphorylated tau proteins with a dephosphorylating agent.

24. (New) A hybridoma, which secretes a monoclonal antibody according to claim 20.

25. (New) A process for isolating a hybridoma secreting a monoclonal antibody according to claim 20 comprising the steps of:

(a) immunizing the spleen cells of an animal with an antigen recognized by the monoclonal antibody deposited at ECACC on October 8 under No. 91100806;

(b) fusing said immunized cells with myeloma cells under hybridoma-forming conditions; and

(c) selecting those of the hybridomas which secrete said monoclonal antibody.

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26. (New) A process for producing monoclonal antibodies according to claim 20 comprising the steps of:

(a) culturing the selected hybridomas according to claim 24, in an appropriate medium culture;

(b) recovering the monoclonal antibodies excreted by said selected hybridomas; or alternatively; and

(c) implanting the selected hybridomas of claim 24 into the peritoneum of a mouse and, when ascites has been produced by the animal, recovering the monoclonal antibodies then formed from said ascites.

27. (New) Process for the detection or diagnosis in vitro of brain disease involving PHF and abnormally phosphorylated tau protein, comprising the steps of:

(a) contacting a monoclonal antibody according to claim 20, with a preparation of NFT or a detergent-extracted brain homogenate isolated from a patient having had Alzheimer's disease under conditions suitable for producing an antigen-antibody complex; and

(b) separating the antigen from said complex and detecting the antigen sought in a purified form wherein the presence of the antigen in quantities higher than control indicates said brain disease involved PHF abnormally phosphorylated tau protein.